

DAM THE THAMES

A Matter of Sanitation,
Comfort and Economy.

A PLAN FOR A
TIDELESS RIVER
- IN LONDON -



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2510



22502846258

Broads
↓

Harwich
↓

Mersea I.
↓

The Nore, 70 m. away
↓



Serpentine →
Hyde Park →
Round Pd.

← North Sea
Horizon :
at least
200 m.

← Outer
Estuary

← Tilbury

← Purfleet

← Dagenham

← Woolwich
30 m. away

← Isle of
Dogs

← Tower

← Charing X

← Battersea
Park

← Fulham

← Putney

← H'smith

← Castelnau

← Barnes

← Chiswick

← Kew

← Richmond

THAMES ESTUARY FROM A HEIGHT OF 21,000 FT.

Infra Red Plate Photograph

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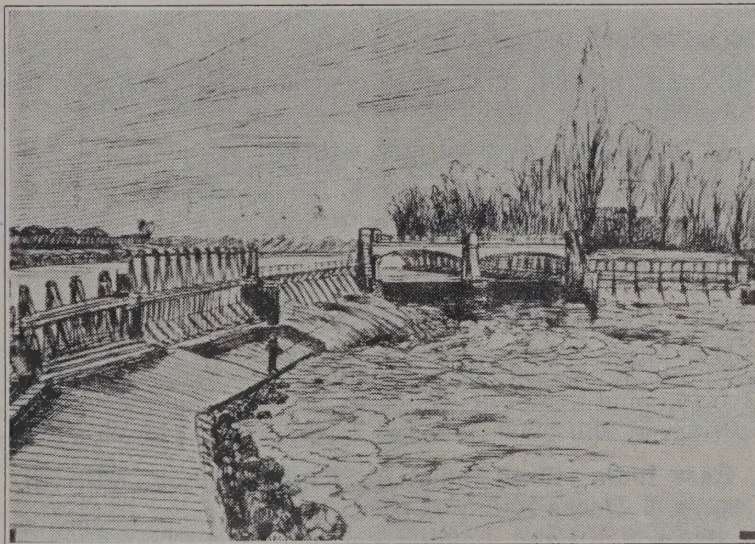
DAM THE THAMES.

In the course of several years of research I have had the advantage of hearing many expressions of opinion, held by all sorts and conditions of people, interested in London's River. Many of these show that they fail to realize the true character of the watercourse along which London was built during the last nearly two thousand years.

Before developing the object of this pamphlet, which is the advocating of a **Dam at Woolwich**, it may, therefore, be useful to state as shortly and clearly as may be, what the "River" Thames really is. A river may be defined as a watercourse in which the water flows constantly in one direction from a higher to a lower level. Below Teddington the Thames is not a river; it is an estuary, which is a watercourse in which the water flows up and down, twice reversed every twenty-four hours by the tides.

This definition is probably known to everybody, yet the majority of people always refer to the Thames as a river.

Down from the hills to Teddington the Thames is a lovely little river, with beautiful shores and wooded hills, even if man has seen fit to modify the beauty of the valley by building nearly 50 locks and weirs for various useful purposes.



At Teddington the River is only 210 feet wide.

After the upriver contents have been flung over the weirs successively built to meet the requirements and safety of those who live above Teddington, the Thames flows along a widened road and passes through London, reluctantly it seems, for it takes 30 tides to clear its reaches, see-sawing past the thirty miles of crowded shores before it reaches green fields once more.

The Tides have completely changed the character of the river, which ends at Teddington—as the name shows—Tide-end-town.

Is it not high time for us to consider how we can deal with their sinister influences, their actual and increasing menace?

A comparative table of the dimensions of the estuary below Teddington indicates the effect and extent of the scour by the tides, as the stream approaches the sea.

				L.W. squared section in- creases from
Teddington	... 210 feet wide	3 feet deep at L.W.		1
Hammersmith	. 610 „ „	3½ „ „ „		to 3½
Waterloo	... 1,100 „ „	7 „ „ „		„ 12
London Bridge	. 740 „ „	8 „ „ „		„ 9½
Woolwich	... 1,500 „ „	21 „ „ „		„ 50
Gravesend	... 2,400 „ „	32 „ „ „		„ 122

When we compare the volume of the Thames with the immensely larger quantities of water which have been brought under control elsewhere, under much more difficult conditions, we realize that the following proposals are both moderate and practicable. There are so many precedents to-day. The most spectacular examples of human control of water are, as in the Thames estuary, connected with the keeping out of the tides.

Three big cities—Hamburg, Boston and Amsterdam—have done this and success in all these instances is complete and incontestable. The most remarkable is the 16-mile dam with ship locks and sluices, which, since 1932, has made the Zuyderzee into a fresh-water lake of over 500,000 acres, after another 500,000 acres will have been reclaimed into agricultural land.

When one realizes the heads of water which dams hold up in Egypt, India, Java, the U.S.A. and Iraq, the idea of holding up 20 ft. to 25 ft. of water in a Thames lake seems like child's play. As one man said to me quite recently: "If this were Egypt or India, it would have been done long ago."

The Dam of Kut, near Bagdad, now under contract with a London firm for £1,000,000, is to be 1,500 ft. long and 50 ft. high, with locks for river craft.

The Dam at Woolwich also 1,500 ft. long will require much larger locks. The Kut Dam will have to hold water during the season for its entire height of 50 feet, whereas the Woolwich Dam will never be called upon to hold up more than 20 to 25 feet head.

PRECEDENTS.

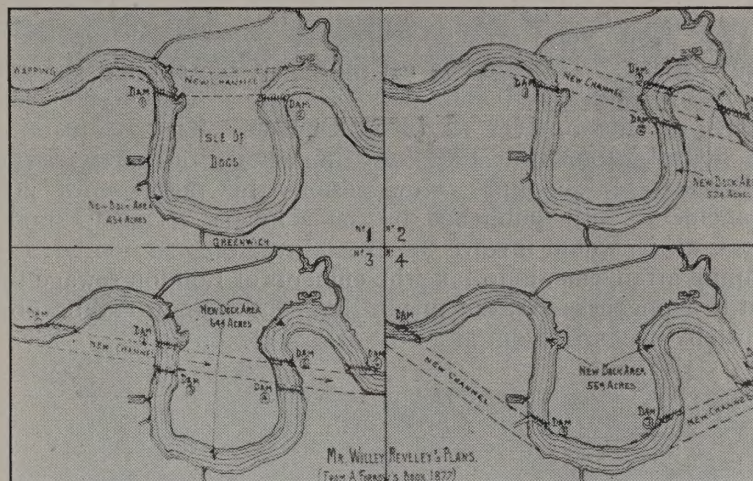
Since the close of the XVIII Century London has built docks, to obtain nearly 90 miles of tideless mooring and handling of cargo and to get away from the crowding of the tideway, the thieving in the river and the inadequate accommodation of the wharves

London Docks, East India, West India, St. Kath's, Surrey, Millwall, Victoria, Albert, Tilbury and King George V Docks to-day supplement the river fronts of old to deal with 37,000,000 tons of goods which enter London Port annually these days.

In 1858 Mr. H. Robinson proposed a Dam at London Bridge, to make the estuary above the bridges into a tideless dock space. Nothing was done, because sewage conditions were such that London at the time could not do without the tides to get rid of its sewage. In the seventies, Bazalgette's 83 miles of intercepting sewers brought London's sewage down to Barking and Crossness.

About this time Mr. Willey Revelley brought out four plans for dams in the estuary to form whole bends of the river into docks. But he did not interfere with the tides; indeed, planned to facilitate their rush inland by huge new channels and shortcuts.

In 1881 Mr. W. R. Browne read a paper in the Institution of Civil Engineers arguing that a properly constructed Dam would not cause silting up.



Revelley's Plans (about 1860) did not control the tides at all

In 1904-7 Mr. T. W. Barber, M Inst.C.E., proposed the Gravesend Barrage. He and his associates made a magnificent effort. A powerful and competent Committee was formed, many meetings held, resolutions passed and an enormous amount of research work done, which is recorded in "the Port of London and the Thames Barrage." This book is a classic and remains with us to-day as a guide. I have derived a large amount of invaluable information from it, which would not otherwise be available to me.

The 1904-7 effort came just when the ancient fight between docks and wharves developed into inextricable chaos and controversy. The Port of London Authority was formed in 1909, as the result of the Royal Commission's investigation of 1902. It solved the administrative problem. The record of its achievements will be found in "the Port of London 1909-1934," by Mr. Alan Bell, a very delightful book published last year.

In 1907 the time was not ripe for the "canalisation or dockisation" of the Thames estuary over a length of 76 miles. The P.L.A., then being born, could not shoulder the task of this change, when so many other urgent measures awaited solution.

But things have changed radically in 25 years, and continue to change.

In 1921 an Engineering Congress in London had on its programme a paper by an expert in the handling of cargo. He spoke for the wharves and the desirability of procuring for them tideless manœuvring of ships. In doing so he referred in favourable terms to the Gravesend project and was severely snubbed by the antagonists of that plan. No technical objections, however, were raised.

To-day's conditions differ from the Gravesend plan's stipulations, but the principle of excluding the tides from London's river remains and is fortified by consideration of the changes which have taken place in the thirty years since Gravesend was proposed.

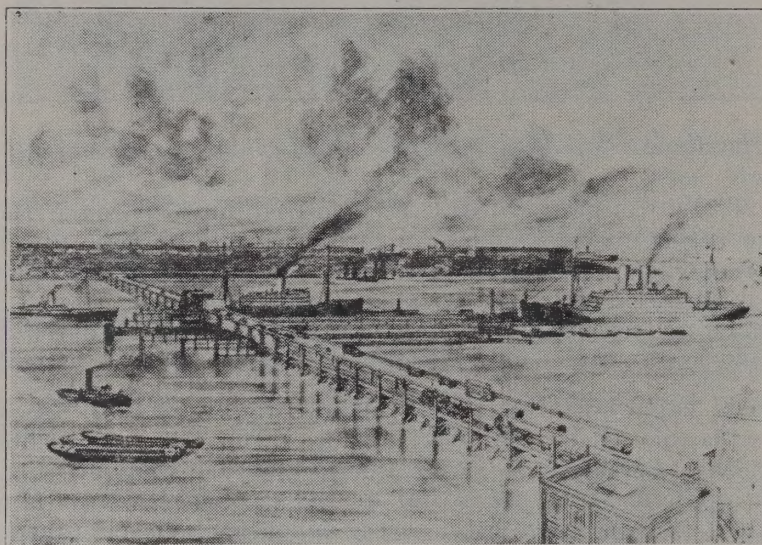
WOOLWICH.

We can now consider some of the reasons why a Dam situated in Woolwich Reach is one which will satisfy a maximum of desiderata. These are:—

1. **Navigation below bridges.** The exclusion of the tides will enable craft to work up to wharves and into and out of Docks, relieved from the restriction of limited tidal periods and tidal currents.
2. **Navigation above bridges.** The large Power Stations at Greenwich, Deptford, Battersea, Lotts Road and Fulham, in addition to the older Gasworks at Vauxhall and Wandsworth, require the daily transport of increasing quantities of fuel. Colliers

have been built to pass under bridges at certain limited stages of the tides. It is of great importance that all restriction on navigation should be removed and this can only be done by maintaining a permanent level in the river.

3. **Pollution.** Sewage from very greatly increased populations upriver is still allowed to flow into the estuary. The total is estimated at 65,000,000 gals. per day. Barking and Crossness, below Gallions Reach, deliver another 270,000,000 gals. per day. The tides entrain part of this upriver as far as Chelsea. The exclusion of the tide above Barking would definitely prevent 81% of this wholly or partly treated effluent from penetrating the heart of London. How serious this problem of pollution is, may be realized by a scheme recently published by the Ministry of Health and prepared by three eminent engineers, which would involve an expenditure of £110,000,000 on the diversion of sewers and pumping arrangements to take the effluents of London sewage through the Medway Valley and Kent to Dungeness and the open Channel. This would be obviated if a Barrage scheme at Woolwich was carried out at a cost of £4,500,000.



*At Woolwich the Estuary is 1500 ft. wide ; the real river disappeared at Teddington 30 miles away.
It is shown with a low level road and rail crossing over a dam with six ship locks.*

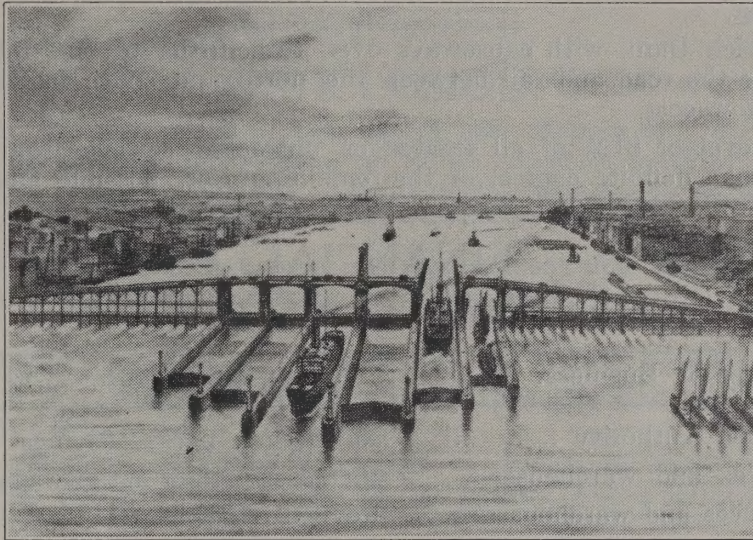
4. **Flooding.** When high tides coincide with a north-east or north-west wind in the North Sea and with abnormal flows over Teddington, the whole of London along the river is in danger of flooding. At present there is nothing to prevent it. The P.L.A. have dredged the river channel since 1909; the increased section thus created allows the tide to come up more freely and has actually increased the flood danger. The increased scour has, moreover, caused Waterloo Bridge foundations to subside and has necessitated its rebuilding. It is clearly necessary to remove this danger from the 21 other bridge foundations, which are similarly threatened. In 25 years the tidal current's speed has increased from $2\frac{3}{4}$ to $3\frac{1}{2}$ miles per hour.

A dam at Woolwich would have to pass all the shipping using the older docks and the wharves. An analysis of the shipping of to-day shows about 7,000 ships into London per year. (P. of L. Shipping Guide.) Of these 5,500 pass Woolwich, 78% in number, approximately 55% in tonnage. Practically all ships in what we may call the Woolwich category will be able to pass up Gallions Reach, with its 32 ft. at L.W., and into the Dam's locks at any stage of the tide.

A dam at Woolwich would ensure that, for the first time in the history of London, a permanent control of river level would be available, for the entire distance between Woolwich and Teddington.

With a dam at Woolwich **all** barge traffic from and to ships in docks or at wharves will be in tideless waters. This means that all of London's internal port movement will be free of all tidal handicaps. Ships will be able to come and go at their own convenience, that is to say: when loading or unloading is completed. In consequence, their working will be very much more economical. In addition, they will be waterborne all the time.

The dam at Woolwich would give an opportunity for crossing the river at a very low cost, not only for road traffic, but also for rail, with minimum connections to existing rail N. and S. of the river.



View (from the air) of Woolwich Reach with Dam, Locks and Bridges for Road and Rail

ADVANTAGES.

The foregoing considerations point to advantages that will be obtained:—

1. Barges and colliers will be able to navigate to and moor at all wharves and warehouses at all times, load or unload, and return at any time.
2. Wharves and warehouses will receive and despatch goods as and when required.
3. Access to Brentford and other docks will be greatly facilitated, also to Grand Union Canal, for through traffic to Midlands.
4. The increase in river traffic, which will certainly follow increased facilities, will relieve slow moving road traffic and therefore congestion, notably in the docks area.
5. Power stations will profit from all-day fuel supply and cheaper handling. Also, from better and more water for condensing circulation.
6. All bridge foundations and river walls will be safer by the elimination of fast scour. Repairs will be cheaper.
7. Channel dredging will be greatly reduced, as upland silt is only about one-fifth of the total silt in the estuary.
8. All riverside property will be enhanced in value; business premises by increased accessibility, private premises by disappearance of mudflats, smells and decaying matter.
9. The number of barge roads and moorings will be greatly reduced because no waiting in "deep water" will be necessary. This will increase the width for free navigation very considerably.
10. The increased fairway will make it possible to devote one reach to an airport, without current, at constant width and level. Battersea Reach is indicated for this by the absence of buildings on one side, and its 3,500 ft. of quite straight watercourse.

11. All watersports, rowing, sailing, swimming, would find their facilities increased by the absence of dangerous currents and by cleaner water.

12. Passenger transport on the Thames would become a much more easily- practicable and desirable project.

13. Dock entrances will be much easier to make, therefore cheaper, and much time will be saved.

14. Demudding of docks would be eliminated, or at any rate, much reduced. In 1907 this item alone was calculated at £40,000 per year, and has probably been considerably increased in the last 25 years.

15. Pumping the docks would be practically eliminated, another item representing a very large saving.

16. A Woolwich Dam, with causeways over three-fifths of the total width of the river, would enable the road and rail between the north and south banks of the river to be made at very low cost.

17. The removal of 81% of all treated or untreated sewage from the area above the dam would make definite control of the remaining 19% possible and effective.

FINANCIAL.

This table will show how the public are interested in and affected by this proposal.

Authority or Business.				Reason for Interest: in its simplest form.
1.	Port of London Authority	...	...	Navigation, docks, savings in expenses.
2.	Active wharves and warehouses	...	...	Increase of their activity and saving in costs.
3.	Inactive wharves and warehouses	...	...	Revival of their use.
4.	L.N.E.R. and S.R.	...	...	Direct connection, north and south, and relief of roundabout lines.
5.	Ministry of Transport	...	...	Relief of traffic congestion in East and Central London, direct connection of North and South Circulars.
6.	Ministry of Health	...	...	Elimination of 80% pollution.
7.	Ship owners	...	...	Facility of navigation for ships to docks and wharves. Elimination of time losses due to tides. Elimination of strain on hulls.
8.	Barge owners	...	...	} Increase of activity, by reduction of cost of transport services competing with road services.
9.	Tug owners	...	...	
10.	Watermen	...	...	
11.	Power Stations, Gas Works	...	...	Fuel supply at all times, cheaper and cleaner water supply.
12.	London County Council	...	...	Elimination of Woolwich Ferry.
13.	London Passenger Transport	...	...	Direct connection of four N. and S. 'bus lines.
14.	Goods shippers	...	...	Reduction of costs of handling and transport of goods.
15.	Metropolitan Water Board	...	...	Reduction of quantity of water taken from mains.
16.	Thames Conservancy	...	...	Freedom to let out its surplus waters at any time.
17.	The public at large	...	...	Increase of sundry river amenities.
18.	Factories, Breweries, etc.	...	...	Increase in the supply of water from existing wells.

A conservative estimate of calculable savings for which data are available shows that the public, under these eighteen categories, would benefit to the extent of £611,000 per annum, leaving out of the reckoning all indirect benefits, such, for example, as relief of traffic congestion on shore. £611,000 at 3% represents a capital value of £20,400,000. It is estimated that the cost of a Dam, with locks and bridges, cannot exceed one-fourth of that sum.

It is not possible to suggest in this leaflet, in which way the cost or upkeep of the Dam should be apportioned. The building of the Dam is a London and, indeed, a national affair, to be decided after due official inquiry. The result of this will ultimately settle all points of design, cost and upkeep and their allocation.

CONCLUSION.

In conclusion we turn to Mr. Alan Bell's last chapter in "the Port of London, 1909-1934," and its picturesque summing up of the career of the Port Authority.

In the closing chapter, which is entitled "**The Promise of To-morrow**," we meet these expressions:—

"Once a year London perceives for a moment that she owns a river. But for the most part the imagination of the citizen sleeps."

Also:—

"Some new turn, some fresh stimulus is needed to quicken the interest of London in the Thames. It is not unlikely that the Port of London, in coming years, may supply it."

I append a statement signed by a number of people of experience and goodwill, present at the first public announcement of this project, whose permission for publication I was able to secure. Many more signed, but they dispersed beyond my reach.

"We, the undersigned, as members of the general public and as lovers of London and its River, have considered the project for a Barrage with Locks in the River above Woolwich, as set forth by Mr. J. H. O. Bunge in his lecture to the London Society at Lancaster House on January 22nd, 1935.

"We are of the opinion that this project merits serious attention and inquiry to determine its 'Desirability and Practicability.'

Sir Louis Dane.

Sir George Hume, M.P.

Alexander Reid, Deputy Mayor of Richmond, M.Inst.C.E.

Sir Arnold Musto, M.Inst.C.E.

Sir. Thomas Ward, M.Inst.C.E.

Dr. W. R. Bisschop, LL.D.

A. van Anrooy, R.I.

C. E. Irving, R.N.R.

Ernest Herbert.

W. A. White (Cr., Fulham).

Engr. Rear-Admiral W. Scott-Hill, M.I.N.A., M.I.Mech.E.

F. L. Gordon, M.Inst.C.E.

Among those who have joined the above in urging a public inquiry are The Industrial Transport Association, The Woolwich Chamber of Commerce, etc.

A number of the above have formed the THAMES BARRAGE ASSOCIATION for the purpose of promoting general interest in the project and urging an official and public inquiry, at the earliest possible date.

Any subscriptions and/or donations may be remitted direct to Martin's Bank Ltd., Africa House, Kingsway, W.C.2, for account of the Thames Barrage Association.

COMPARATIVE FIGURES IN A NUTSHELL.

There are at present in preparation plans to deal with problems arising from London's 8,500,000 population living on the banks of the river Thames. These problems are :

- (a) The need to cross below London Bridge.
- (b) Sewage in the river.
- (c) The need for more tideless accommodation of ships.

The respective plans are for :

(a)	{ Tunnel, Dartford to Purfleet for road and rail, estimated at ...	£3,750,000
	{ High level bridge at Woolwich for road only, with approaches, estimated at	£9,000,000
(b)	Effluent sewer through Kent to Dungeness, being part of Ministry of Health's Report (Greater London Drainage, December, 1934), estimated at	£62,000,000
(c)	New Dock north of " Albert Dock," to provide about 4 miles of tideless quays, estimated at	£6,000,000
Time to complete unknown.		
Total estimated cost		<u>£80,750,000</u>

These four plans do absolutely nothing to solve the problems of

- (d) London being the most expensive port in Western Europe.
- (e) Internal transport cost, from docks and upriver.
- (f) Congestion of street traffic by slow moving vehicles.
- (g) Overflow from upriver *ad libitum* (Thames Conservancy Bill).
- (h) Safety of 22 bridge foundations and 60 miles of riverwalls.
- (i) Covering up tidal mudflats, an offence to the senses, a danger to health, an indignity to a City of London's size and importance.

A DAM or Barrage at Woolwich, with 6 shiplocks and quick-lift, short-span bridges over 4 of them, would completely solve or greatly simplify these problems for many years to come.

A DAM would permit postponement of practically all of the above estimated sum being spent, for a generation at least and in addition to points a, b, c, deal with all others for an estimated expenditure of about £4,500,000, and within a time of 18 months, if efficiently organised.

ON THE FOLLOWING PAGES, 9-16.

A few Press items have been added to show outstanding comment on the important **Sewage Question**, forcibly revived after fifty years of half measures ; also on **Objections Raised with a Survey on other Works** for the exclusion of the tides.

THE THAMES BARRAGE PROPOSALS.

Association's Reply to some Objections.

TO THE EDITOR OF LLOYD'S LIST.

SIR,—In the course of the past six months a number of objections have been stated against the proposals of the Thames Barrage Association for a barrage across the river at Woolwich. These written and spoken objections have, so far, been based on Silting, Ice, Fog, Seepage, Delay at Locks, Size of Locks, Number of Lockings, Pollution by Stagnation, Head of the Tide, Motive Power of the Tide, increased Unemployment. Permit us to analyse these as briefly as may be so as to give your readers a survey of their importance, as compared to the benefits which we anticipate from the removal of the tides in the London reaches of the Thames as stated in our pamphlet. "Dam the Thames."

SILTING (above the dam): The Woolwich Dam would repeat on a larger scale the action of the weirs at Teddington. Up-river water contains about one-fifth of the silt in the estuary water. There is no evidence of silting up above Teddington. In the 30-mile lake to be created between Teddington and Woolwich only up-river silt would enter. Close calculation has shown that its deposit in the lake could not amount to more than one-tenth of an inch per year or 1 ft. in 120 years. **SILTING** (below the dam): Certain objectors have used as an argument contra the dam their personal conviction that Gallions Reach would silt up. Such convictions may be taken as a valuable warning, to be checked by precedents elsewhere: that is to say, where tide exclusion has been effected. These cases are Avonmouth, Boston (Mass.), Richmond (half-tide dam), Teddington. None of these have shewn the tendency to silt up. On the other hand the Zuyder Zee dam and its outlets have furnished valuable precedent in the scour below the sluice gates, which could and would be reproduced by the 21 ft. maximum difference in head through the Woolwich Dam sluice gates.

ICE: Some people fear freezing over with only fresh water in the river lake. With salt water in the estuary history records a small number of cases of frost-bound river. These cases made history because of their very rarity. But how often does the river above Teddington freeze? And what would the intensified modern traffic with power driven vessels in the London reaches do to the ice which might form in a cold spell? The powerful tugs of this age would keep the fairway open without the slightest difficulty and at very little expense, if any, in London's climate.

FOG: One objector raised the scare of fog as a danger in entering the locks. London's climate has about 19 days of fog per year, but according to official record their total holding up of traffic does not exceed 110 hours per year. At any rate it will be much safer to enter well-beaconed lock-heads than to swing at anchor in a fog in a three and a half mile tidal current. The dam would remove this danger over 10 miles of navigation below bridges and nearly 20 above them.

SEEPAGE: Some areas along the river will be permanently below Thames level when the dam causes the river to stay at a constant height. Certain people fear that seepage through banks will be dangerous. Why? All these low areas have pumping plants to free them of storm water by lifting it to river level. Actual seepage would probably decrease because the swift currents of today and their reversal four times every day keep the minute channels open through which seepage takes place. These channels would tend to "puddle up" in the very much slower moving lake waters with the much finer upland silt, perhaps slowly but very surely.

DELAY AT LOCKS: In our scheme we have figured 12-14 minutes for locking the larger steamers, correspondingly less for the smaller craft in the total of six locks. Manchester locks fill in five minutes. These delays are admittedly inevitable. On the other hand steamers can enter locks at any stage of the tide, for Gallions Reach

has 32 ft. at low tide close to the end of the projected locks. Therefore tidal waits could never be serious. It will be cheaper to lock through in say 12 minutes and go up to berth, dock or wharf, than to sit in the tideway waiting for Woolwich Reach and upwards to fill up to navigable depth, during three or more hours, according to draught.

SIZE OF LOCKS: Will ships going up river increase in size in say 25 years? Perhaps they will, specially if entering docks will be made so much easier and cheaper in still water. Locks may be made any length that foresight will dictate. Present proposals are for two 710 ft. by 100 ft. locks in the centre.

NUMBER OF LOCKS: Analysis of the P.L.A., Shipping Guide show that 5,500 sea-going ships pass Woolwich every year. This means 11,000 lockings: average 30 per day, or between seven and eight per day for each of the four locks intended for that traffic. Barge traffic and small craft would have the two short outside locks, which, if having a locking speed of seven minutes, would permit to pass craft down or up every 3½ minutes: over 400 lockings per day capacity. If the medium locks were used for this traffic at times, permitting several craft or tows to pass in one locking, the total of 400 might be substantially increased.

POLLUTION BY STAGNATION: As a danger to health this a real terror to some objectors, who think that running waters decompose decayable matter by mere speed. They do not know that fresh water contains 3-4 times more oxygen, which is the decomposing agency, not speed. The river lake would receive only 19 per cent. (say one fifth) of the sewage effluents which now run into the Estuary by the damming of above Barking and Crossness outfalls. Therefore it should be apparent that conditions will not be worse than now but much better; in figures 3-4 times 5, or, say, 18 times better.

HEAD OF THE TIDE: Some people fear that the tide will pile up and overflow the banks below the dam. Water will flow to and spread over places lower than the tides' head; it will not pile up and climb over river banks unless forced by pressure. The Estuary is not sufficiently funnel-shaped to cause any such pressure in the wide reaches below the proposed dam.

MOTIVE POWER OF THE TIDE: This is an almost hackneyed objection, dating from the days of small boats and barges. Thirty years ago 25 per cent. of river traffic was towed; the rest drifted on the tidal currents. To-day 85 per cent. is towed and 15 per cent. drifts. Towage is cheaper than waiting for the tides and their motive power and then drifting at 2-2½ miles. Besides, barges have grown from an average 70 to 125 tons each.

BARGE REPAIRS: Objectors who argue less work for repair yards have a sound case against the dam. The Barrage Association admit with the greatest pleasure that there will be less work to be done on London's 9,600 dumb barges if they do not get their bottoms stove in or their bitts torn out, bumping on the flats in the wash of passing craft. For with a dam there will not be any mudflats.

UNEMPLOYMENT INCREASED: One objector fears that a Thames dam will throw many people out of work, a precious admission of the waste of labour which a tideless Thames would eliminate. But his argument overlooks the fact that the cost of water transport would decrease by the doubling (at least) of the useful time and that it would therefore be able to do much internal long hauling up-river than is now done. This would give relief of road transport congestion. And who would not welcome that for the sake of raising the average speed of traffic, say in the City, from 5½ m.p.h. to seven or eight m.p.h.?

The Thames Barrage Association will welcome any other objections which may be raised. If the competent Government Departments decide for a public inquiry all such objections will be brought into the light of publicity, when their true validity will be weighed against the benefits of a tideless Thames within London.—We are, your obedient servants,

THAMES BARRAGE ASSOCIATION.

LOUIS DANE, Chairman.

J. H. O. BUNGE, Secretary.

3b. Cleveland Road, Ealing, W.13.

Aug. 8, 1935.

Reprinted from the Kentish Independent of August 9th, 1935.

WITH MAPS 

Commenting on the sketch maps shown on page 11 the Thames Barrage Association provided us with the following observations.

It is difficult for Londoners to realize the size and importance of similar works built elsewhere and compare them to what is now being proposed for the river Thames within London; that is say from Teddington to Woolwich.

A few of these engineering works have therefore been shown on one sheet: London, Amsterdam and Boston, all on the same scale, Manchester on twice the scale. For the Manchester Ship Canal is so much longer than any of the three others that the size of our reproduction did not permit the same scale.

The map of the Thames, dammed at Woolwich, with constant level in the proposed river lake, requires little comment. Its reaches are daily knowledge to thousands of Londoners and the Transport Board's bus and underground maps have long since familiarized the general public with the lay of the land over an area of twenty-five miles from Charing Cross as the centre, an area far greater than the slice shown here.

The next sketch map from authoritative sources shows the Amsterdam Ship Canal, completed sixty years ago, with three locks to the North Sea, the last of which is the largest in the world, not excepting Panama. This canal is completely artificial; it was dyked and deepened to its present section to permit access to the ancient market of Amsterdam for the largest ships carrying freight to its storage and warehouses. There was no watercourse ready made by nature, such as the Thames has been since London began. In old days, with small ships drawing no more than ten or twelve feet, all Amsterdam's shipping reached the harbour front on "The Y" from the Zuyderzee, past where the Orange Locks are to-day, still very useful for inland navigation.

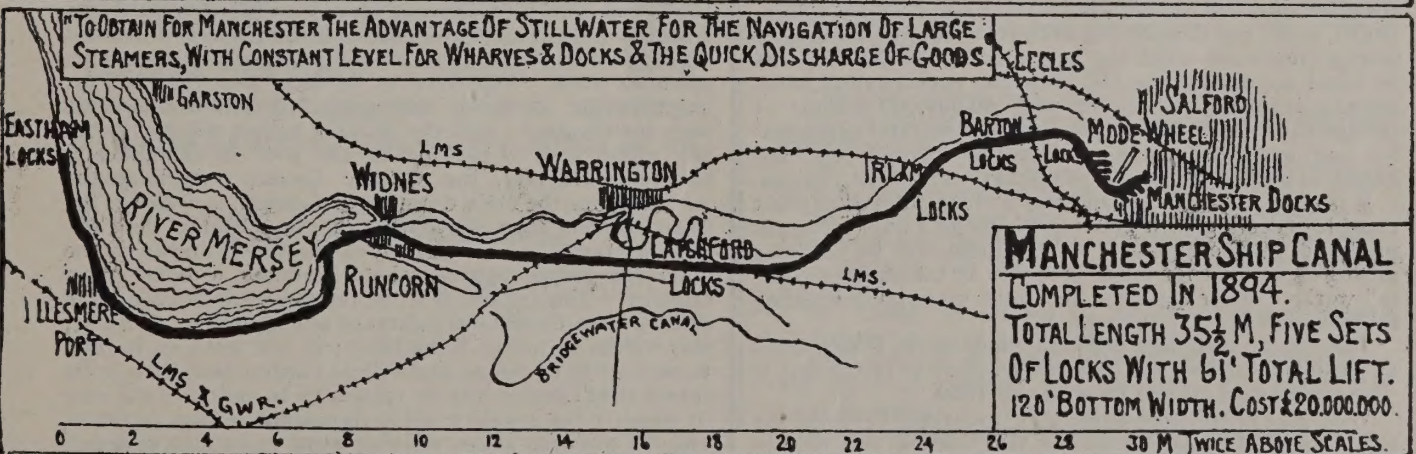
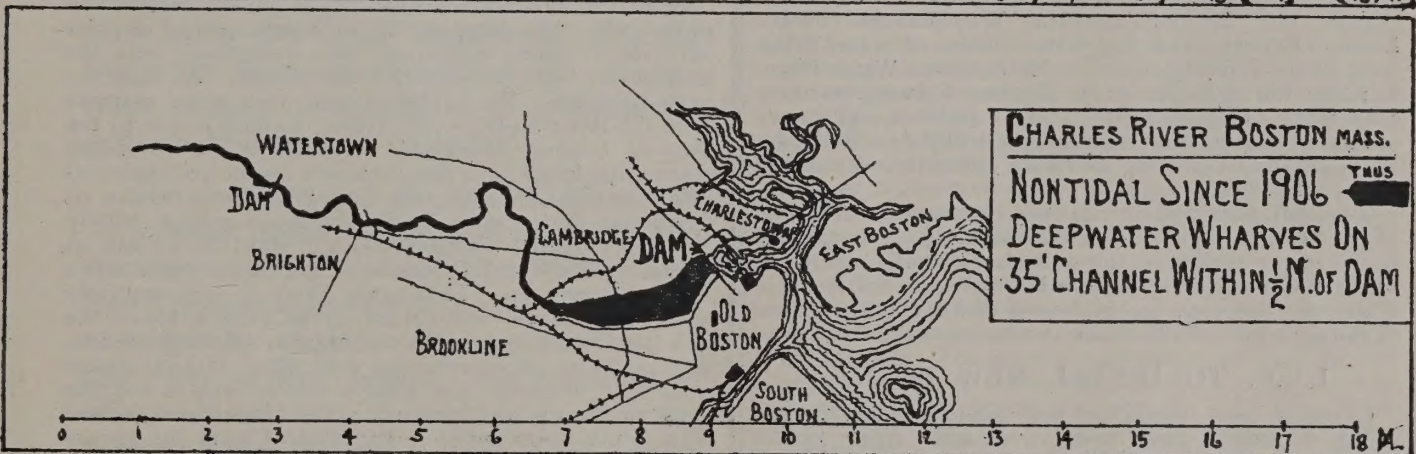
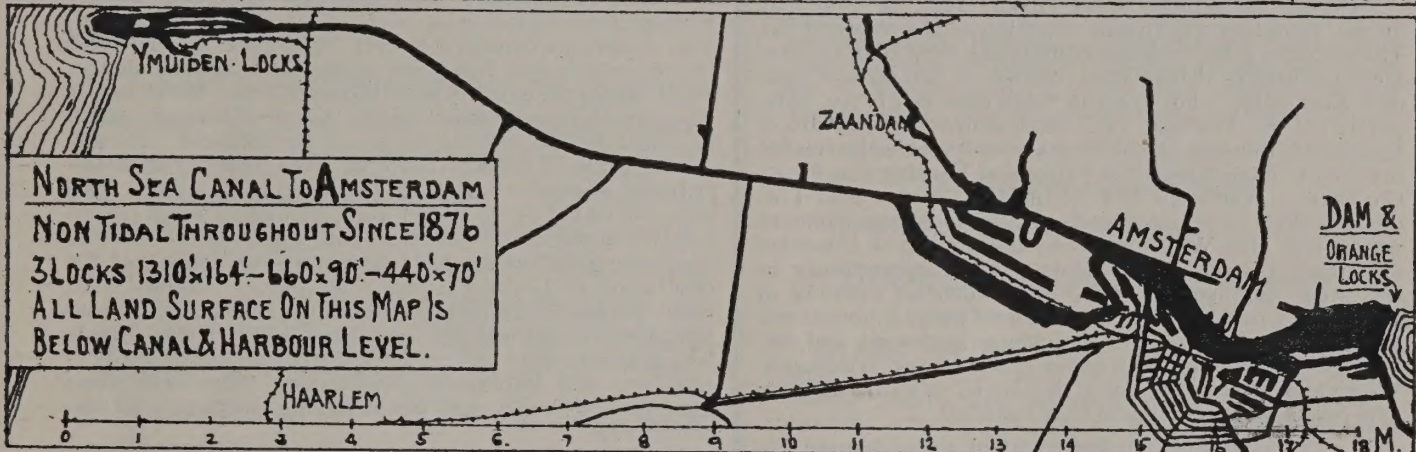
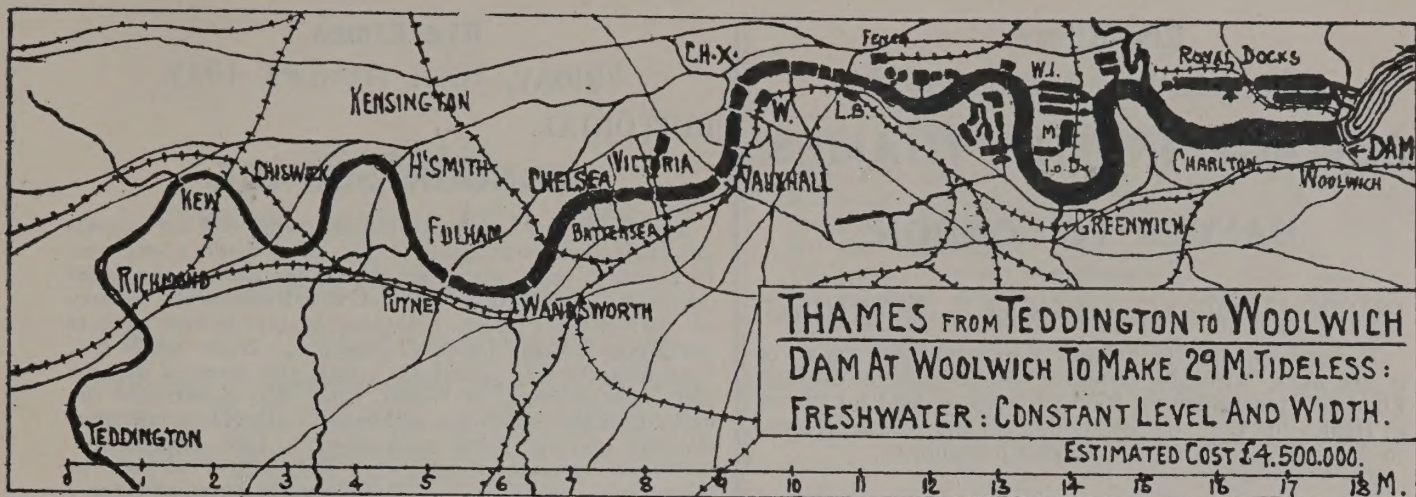
The third map has particular interest for London-

ers, for it shows what a large city like Boston had to do in order to transform obnoxious mudflats and sewage beds in the heart of its best districts into a spacious and delightful lake at constant level, with parks and drives on its shores, with rowing, sailing and swimming made possible and pleasant. Harvard University is in Cambridge, Mass. (see Map) A stone's throw from the dam in the Charles River, Boston's shipping crowds wharves and quays on deep water.

The lower map shows what Manchester saw fit to create in the Lancashire country. Large ships from the tideway in the Mersey to the Mode Wheel Basins have to pass five sets of locks along a thirty-five and a half mile stretch of canal with a bottom width of 120 ft. These locks raise the freighters of to-day over sixty feet above the tideway. All this was completed in 1894. Past Ellesmere, Runcorn, Widnes, Warrington and Eccles the big steamers carry over 6,000,000 tons of freight through this canal every year to the heart of Manchester, where it is needed in the industrial centre of England

What Lancashire thinks to-day, England may think to-morrow. But after 40 years example London has not yet dared to follow it. Water is H₂O all the world over, with or without a little salt in it. Mudflats and sewage are a disgrace to any town, but the stateliest reach of any river on this earth is still content, under the shadows of the Houses of Parliament and the London County Hall, to let things be.

These pictures, shown by comparison, may cause Londoners to think things out for themselves and their port, the most expensive in Western Europe. What has been done elsewhere. Amsterdam, Boston and Manchester show. London's access by water has been scooped out by nature and the Port of London Authority, in the course of the centuries and during the last twenty-five years. All that is needed is one set of locks for a maximum of say twenty-five feet, at a cost of one-fourth of what Manchester paid.



FRIDAY, 9TH AUGUST, 1935.

SEWAGE IN THE THAMES.

DANGER TO LONDON.

PORT MEDICAL OFFICER'S WARNING.

The present condition of the Thames and the danger of it becoming seriously offensive in its course through London is mentioned by Dr. C. F. White, Medical Officer of Health for the Port of London, in his Annual Report to the City Corporation as the health authority.

Dr. White says :—

"During the summer your officers received numerous verbal complaints as to the condition of the water of the Thames, and a few written complaints were sent to your Medical Officer. These were referred to the Port of London Authority, who are the Conservators of the tidal portion of the Thames. The main source of pollution of the river is the enormous volume of only partially treated sewage discharged from the outfalls at Barking Creek and Crossness. When the flow of the river water over Teddington Weir is comparatively small the sewage-polluted water from Half-Way Reach and Barking Creek is carried up-stream on the flood tide in dangerous proximity to the great commercial and even residential districts of London. On the ebb tide the polluted water is not carried clear away to sea, and so it oscillates backward and forward, the volume of fresh water coming over Teddington Weir determining how far it is carried towards London and how long it remains in that vicinity."

If, as appears probable, both the volume of sewage discharged into Barking and Half Way Reaches by the London County Council and the volume of water taken from above Teddington by the Metropolitan Water Board increase, the pollution of the Thames Estuary must become more and more serious. If, in addition, deficiency of rainfall continues or recurs, there will be grave danger of the Thames becoming definitely offensive in its course through London.

This condition of affairs has been receiving the attention of the London County Council for some time. Lord Snell in his recent review of the past year's work, points out that the Council, as the responsible authority for the main drainage of London, has to dispose of 270,000,000 gallons of sewage which the drainage system produces every day.

L.C.C. TO INSTAL NEW PLANT.

Of recent years, important new methods of sewage and sludge treatment have been developed. After careful consideration and experiments on a large scale for a number of years, the Council has decided to adopt a method of sewage treatment called the activated sludge process, and to instal apparatus capable, with the experimental plant already installed, of dealing with 60,000,000 gallons of sewage each day. This process, which requires complicated and expensive plant, produces an effluent of a high degree of purity, which will be discharged into the Thames.

It is also proposed to construct a sludge digestion plant capable of dealing with 200 tons of sludge a day. The gas produced by the digestion of the sludge will be used for raising steam and for other purposes at the northern outfall works. After digestion the solid material remaining is innocuous and free from smell.

The cost of these and other ancillary works is estimated at £630,000. They will take some years to instal, but it is expected that all will be in use in 1939.

With regard to these works it is important to remember that Dr. White's report to the Corporation was written in the full knowledge of what the County Council is doing.

FRIDAY, 16TH AUGUST, 1935.

EDITORIAL.

LONDON SEWAGE.

The sewage of London—an uninspiring but an important subject—is once again in the news after a long rest. It is many years since Sir Alexander Binnie, the chief engineer to the London County Council, conducted a party of distinguished guests, including several foreign visitors over the sewage works at Barking. These works had been completed by the L.C.C. from the plans of the old Metropolitan Board of Works, which had constructed the main drainage of London but was not allowed to complete the undertaking, being superseded in 1888. England—and more particularly London—was still a pioneer in sanitation at the time, and the foreign visitors were eager to inspect the new works, where the sewage was treated. The treatment consisted in the separation of the solid matter, which was taken out to sea in barges as sludge, while the liquid effluent was discharged into the river. It was a great improvement on the previous system, which provided for no separation at all but allowed the raw sewage to run untreated into the river, creating an indescribable nuisance. It was the complaints about this nuisance which led to the reform. But great as the reform was, it yet fell far short of the expectations of the visitors, who were prepared to see a perfect system worthy of the reputation of London as the "mother of 'drains.'" To their astonishment and (politely suppressed) consternation, the effluent was highly offensive, and Sir A. Binnie had shame-facedly to confess that the process of purification was still incomplete. Something may have been done since to improve it, but it remains extremely incomplete to-day.

Now that effluent has come up again; and the London public, who have dismissed the unpleasant subject as done with for so many years, are once more faced with the problem of what to do with their sewage. At least the authorities are. We published last week some extracts from the report of Dr. C. F. White, medical officer to the Port of London, bearing on the subject. He says that many complaints have been received on the polluted condition of the Thames and that "the main source of "pollution of the river is the enormous volume of only "partially treated sewage discharged from the outfalls at "Barking Creek and Crossness." He explains that when flow of water over Teddington Weir is comparatively small, the polluted water is not carried away to sea on the ebb tide, but is floated up to London on the flood tide, and oscillates backwards and forwards. It has always done that, of course, and always will so long as the tide runs backwards and forwards. The immediate problem is to reduce the pollution. The effluent from the sewage works has gone on increasing since they started, until now it amounts to 270,000,000 gallons a day; and the hot and rainless summers we have been enjoying have exposed its polluted state. The river is, in fact, probably not far short of the condition that prevailed before the works were inaugurated: and the state of things will inevitably get worse and worse unless the evil is energetically handled. Happily, the County Council, which is the authority for the main drainage of London, is aware of the unsatisfactory state of things, and is contemplating the inauguration of a new method of treatment known as the activated sludge process, which produces a much purer effluent. The apparatus to be installed will be capable of dealing with 60,000,000 gallons of sewage daily. Whether this will be sufficient is doubtful; it will leave more than three-fourths of the present effluent untouched. It is to be feared that London has no reason to be proud of the way in which it has sought to solve its colossal sewage problem, and the question arises whether some more radical action will not become necessary before long.

The Times

TUESDAY, AUGUST 20TH, 1935.

TO THE EDITOR OF THE TIMES.

Sir,—Dr. C. F. White's report dealing with the polluted state of the Thames has such a direct bearing on the scheme of damming the river that I am surprised no one has pointed it out. Perhaps you will allow me to do so.

I take some interest in the scheme because I live near the upper tidal Thames and am often on the river bank at various states of the tide. I also know something about the pollution of the river. I remember the state it was in before the L.C.C. started the present method of dealing with sewage and Dr. White's report does not surprise me at all. The effluent has always been offensive as I well remember, when I lived near Barking and knew the Creek intimately, and the immense increase in its volume to-day must cause a serious state of affairs in the present low state of the river.

The damming of the Thames at Woolwich should completely stop the oscillation described by Dr. White and free London from this pollution. It would also greatly improve the appearance of the river at low water. Its commercial effects I am not able to judge. But this seems to me the very point that would best be settled by the public inquiry The Barrage Association is asking for. Why anyone should oppose it is a mystery. It looks as though they were afraid of an inquiry.

Your obedient servant,

A. SHADWELL.

The Times.

MONDAY, AUGUST 26TH, 1935.

THAMES BARRAGE.

Whoever reads Dr. A. Shadwell's letter in your issue of August 20 can only be struck by the soundness of his reasoning. Why anyone should oppose a public inquiry into the advantages or disadvantages of a tideless river Thames is a mystery which seemingly would indicate fear lest such inquiry might reveal matters which are not on the surface of the waters. The Thames Barrage Association stands for sanitation, comfort and economy. Sanitation in respect of matters dealt with in Dr. F. C. White's report; comfort in consideration of the relief which a tideless condition of the river would bring to navigation, the increased facilities to transport and the more comfortable use of the river to sporting events; economy in consideration of moneys saved on floods in winter time and drought in summer. Each of these headings would justify a public inquiry. The three combined seem to place its urgency beyond dispute.—Mr. W. R. BISSCHOP, Hon. Treasurer, Thames Barrage Association, 2, Dr. Johnson's Buildings, Temple, E.C.4.

The Richmond Herald.

SATURDAY, AUGUST 24TH, 1935.

THAMES BARRAGE ASSOCIATION.

SUPPORT FOR THE AIMS.

We learn that the Thames Barrage Association is going strong. Sir Louis Dane (late Governor of the Punjab), and a great exponent of barrages in India, which have brought prosperity to the districts concerned, is a great tower of strength to the association, as is also Mr. J. H. O. Bunge, M.Inst.Mech.E.

The facts, writes a correspondent, are just as they were ably described by Dr. James Johnstone, F.R.C.S., of Richmond, when he addressed meetings at Richmond and Twickenham. "There is an absence of definite control of policy for England's great River Thames. When individuals, great and small, are brought to interest themselves in the problem of the lower river from Teddington to the estuary, practically no one has been otherwise than favourable to the barrage. One big firm of wharf owners, apparently from purely selfish interest, which really is without reason, as their business would really benefit from the construction of the fresh-water tideless river from Woolwich up, is up against the scheme. The various authorities are out for the pigeon holing of the scheme, as they argue, like the Chinese, 'it no belong my pidgeon.'" All we call for is a public inquiry. We of the Thames Barrage Association have no personal axes to grind; in fact, we have to dip into our own pocket; to pay for printing and postage."

AIMS.

The aims of the Association are clear;—

- (1) A navigable Thames at all states of the tides from Woolwich up river.
- (2) Control of flooding and protection of riparian owners, with a minimum of expense.
- (3) A clean river, free from the packing and filling of sewage and garbage throughout the river course in the greatest city in the world by preservation of amenities.
- (4) Unity of control to help the Port of London Authority in its great responsibility.
- (5) A small expenditure of about £4,000,000 to do the work and easily save the cost of interest and amortisation.
- (6) A public inquiry to achieve these objects.

The Times.

AUGUST 29TH, 1935.

LONDON SEWAGE.

PROPOSED THAMES BARRAGE.

TO THE EDITOR OF THE TIMES.

Sir,—Your leading article on London Sewage in your issue of August 16th, rightly gives publicity to a nuisance which has been tolerated too long by The London public and I was glad to read that Dr. Shadwell again drew attention to the proposal of a barrage across The Thames at Woolwich as being the most simple and practical method of dealing with this matter.

It is now several weeks since The London Chamber of Commerce asked the Minister of Transport to inquire into the scheme, the former body having come to the definite conclusion that a case had been made out for such an inquiry to take place. So far nothing has been done.

As I understand it, the object of the London Chamber of Commerce, in asking for an inquiry, was to find out whether the result of putting a barrage across the Thames at Woolwich would or would not improve the transport facilities of the river up to Teddington Lock. At the present time, except for a few hours every day when the tide is sufficiently high to provide enough water, navigation is not possible above the Pool except for craft of

very shallow draught and at all other times navigation is a hazardous proceeding owing to the speed of the current, collisions of one sort or another are frequently taking place; only just recently a very bad accident occurred which would never have happened if the fast flowing current had been under proper control, as is the case with almost every other European river of importance. This summer there has been an outbreak of several serious fires which did untold damage to riverside property owing to the fact that the river firefloats could not approach the bank on account of the low state of the tide.

But all these problems could be settled once and for all by a public inquiry, which is all the Thames Barrage Association asks for, but I much doubt whether such an inquiry will be held under present conditions.

The divergent interests of the Port of London Authority, the London County Council, fearful of what may be brought to light by such an inquiry, the Ministry of Transport trying to avoid any thing which might prove contentious, and all the other traffic and transport authorities pulling in different directions do not want an inquiry which would bring to light the neglect and waste of what should be England's finest transport way.

But the day will certainly come when democracy will demand closer co-operation between these numerous authorities and the Ministry of Health and the Ministry of Transport will be forced to hold a joint inquiry into a matter which has been tolerated for so many years because it has been kept in the dark.

Yours very truly,

L. BEAUMONT-THOMAS.

House of Commons Aug. 23.

What Boston, U.S.A., has been able to do after The Damming of the Charles River.

One of the members of the Thames Barrage Association on a trip to the other side of the Atlantic this summer writes to the Chairman as follows :

TORONTO,

August 12th, 1935.

Dear Sir,

During my recent journey through the United States I took advantage of the opportunity offered to visit BOSTON and to inspect the Charles River Dam and the area above it, directly affected by the changed regime of the river.

The officials at the Offices of the Metropolitan Commission and in particular Mr. Davis of the Parks Division, and Mr. Howard of the Water Division, received me with every courtesy, provided me with a great deal of information and conducted me along the river banks, where such a great transformation in the hygienic and artistic amenities of the City have been made possible.

Mr. Howard was engineer in charge of the construction of the Dam and is justifiably proud of the extraordinary changes that have followed upon its completion.

It is difficult to speak of these changes without risk of exaggeration. The change from a filthy little stream, running to the sea between wide expanses of putrid mud, to a beautiful lake dotted with pleasure boats and bordered by lagoons for swimmers and for model boat sailing, is, in itself, subject enough for enthusiasm. But when we turn to the banks we find still more remarkable alterations.

The foreshores have been filled in. Parks have been created on both banks with motor roads, open air Concert Pavillion, etc. And on the North bank, where previously, there was nothing but an expanse of mud and swamp, there are now a succession of large Factories, enjoying water transport facilities, some fine residential quarters and some Educational Edifices, the whole presenting an astounding metamorphosis.

One is constantly driven to the remark : If only those who object to a Barrage on the Thames could see this !"

On the Saturday an International Speed Boat Regatta was held on the river and 200,000 people enjoyed the spectacle from the banks.

Of course the first questions I put to Mr. Howard were on the subject of silting. "Silting" he said "where?" I explained that we were subjected to a constant bombardment of criticism on this point, ill-informed I admitted, but still we had to deal with it; and that it was more from the point of view of our being able to dispute contentions put forward on the subject, than anything else that I had come to Boston to see and hear for myself. Mr. Howard's reply was short and to the point.

"No dredger has ever been used either above or below the Dam since it was first operated." Further he remarked: "If there were any obstruction to navigation, we should be the first to hear of it."

Actually, the idea of silting was received with complete scepticism—it was set aside as an unpractical consideration.

In this respect—and as having a direct relation to the whole problem, it may be remarked that plans have already been prepared and received Official approbation, for the construction of a similar Dam across the River Mystic, which also runs into the sea at Boston. Not less extensive advantages to the town are anticipated from the construction of this second Dam.

It is of interest to know that some of the most vigorous opponents of the Charles River Dam have since admitted themselves to have been mistaken, and they are among the most active of those who promote the extension of the riverside improvements.

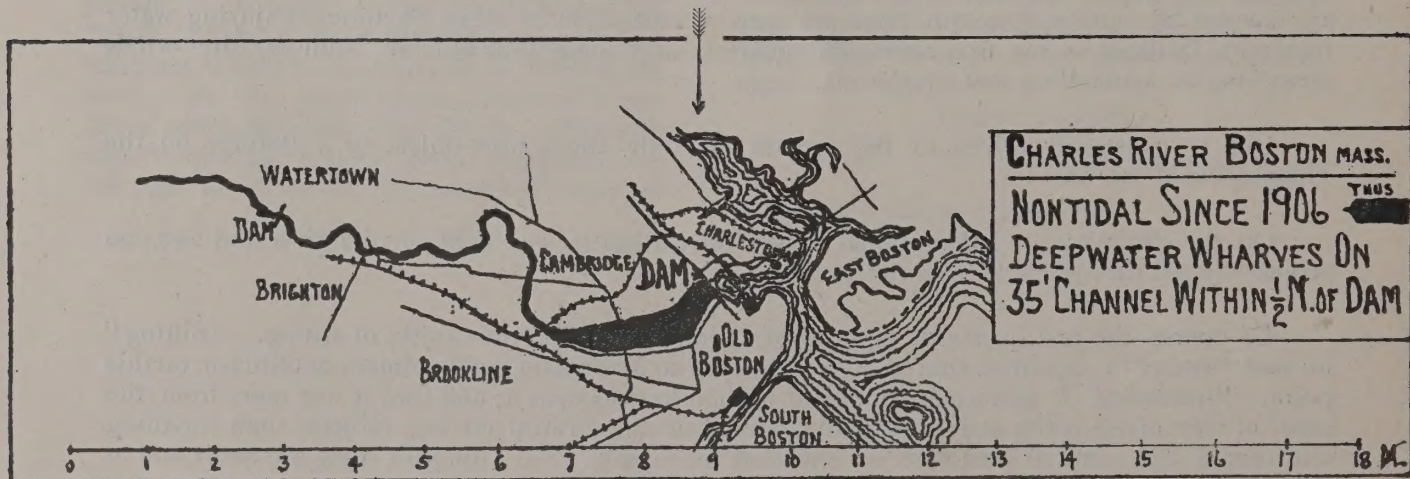
The River widens out above the Dam and forms a lake which is about double the width of the Thames at London Bridge. In spite of the fact that the quantity of upland water flowing through this lake is very small (compared with that in the Thames), the water is quite clear and free from any odour.

Mr. Davis has kindly promised to send me a number of photographs to shew the character and extent of the improvement works, carried out by his Department on the banks of the river.

Yours faithfully,

(Sd) T. W. BARBER.

Mystic River and Bay are here.



THE THAMES BARRAGE ASSOCIATION.



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